

INFLATABLE TOY AND ITS MANUFACTURING PROCESS

TECHNICAL FIELD OF THE INVENTION

- 5 The present invention is about the field of toys, because it is about a semi-disposable inflatable toy, which can be thrown and caught. It flies, glides and bounces. It is shock and pressure resistant and can be submerged in water, it is made of a mylar or nylon or polyester or polypropylene film or of similar polymers or laminations of these, preferably metalized.

BACKGROUND

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15 Inflatable toys that bounce, glide and fly and, which currently exist, have been reported since 1998, as stated by register MX 957 of the utility model. In order to manufacture these toys, you need a rectangular section of a mylar or nylon or polyester or polypropylene film or of similar polymers or laminations of these, preferably metalized which is folded lengthwise and sealed lengthways by heat and other sealing, which forms the conical tip; besides sealing, it is necessary to place a special adhesive tape to reinforce the sealing.
- 20 However, it has become evident, that manufacturing the balloons this way is less cost-effective and requires more time and therefore more personnel and material to make them, which is the reason we thought of reducing these inconveniences, so that the toys can be manufactured with less money and time, but with the same quality.
- 25 That is the reason why in the present application we pretend to protect a new high-quality inflatable toy that can be manufactured in a simple way. Therefore, we also pretend to protect the manufacturing method.
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DETAILED DESCRIPTION OF THE INVENTION

- 5 The characteristic details of the new inflatable toy and its manufacturing method are clearly shown in the following description and in the illustrations that are included, as well as the reference of its indicated parts.

Brief description of the illustrations

10 The following illustrations are mentioned by way of example and should not be considered as being limited in any way for the present invention, since due to the nature of same, the designs of the inflatable toy can be varied, and therefore these designs would be included in the present application.

- 15
- Figure 1. This is a view in conventional perspective of the fixture (device) for manufacturing the inflatable toy.
- Figure 2. This is a left side view of one of the sole plates (flats) that fasten the film; the right side is fundamentally the same.
- 20 Figure 3. This is a top view of the fixture (device) with the film to manufacture the inflatable toy.
- Figure 4. This is a top view of the fixture (device), where one can see the folds made to the film and the application of an adhesive tape.
- Figure 5. This is a cross section of the fixture (device), the folded and taped film.
- 25 Figure 6. This is a right side view of the taped film, where the left side is the same without the fixture (device), with a longitudinal fold.
- Figure 7. This is a conventional perspective of the taped film, with a second longitudinal fold.
- 30 Figure 8. This is a left side view of the taped film, with the second fold, where the location of the thermic sealing is indicated.

- Figure 9. This is a left side view of the semifinished inflatable toy.
- Figure 10. This is a left side view of the inflatable toy, where one can see the application of the adhesive tape on the tip of such toy.
- Figure 11. This is a conventional left side view of the toy with one twisted end.
- 5 Figure 12. This is a conventional perspective of the finished toy with the end wound in concentric semicircles.
- Figure 13. This is a conventional view of the toy being used.
- Figures 14, 15, 16, 17, 18 and 19. These are top views of some of the different tips of the inflatable toy.
- 10 Figures 20, 21, 22, 23 and 24. These are top views of some forms of the cylindrical tube of the inflatable toy.

With reference to these figures, a fixture (device) is needed (Figure 1) in order to manufacture the inflatable toy, which consists of a flat, rigid and rectangular base (1), to which two rubber-lined steel sole plates (flats) (2) are included (3) on its ends; and four pairs of guides (4). The guides regulate the movement and fastening of the sole plates (flats) (2). The sole plates (flats) protrude from the flat base (1), this excess serves to lever in order to operate such sole plates (flats) (2); the opposite end (3A) has a small amount of smoothed rubber on its edges so that the film tube (5) does not get stuck when it is being pulled off. One of the sole plates (flats) must have a set screw (6), which fastens a cable (7) that is connected to a conventional power supply, to regulate voltages with a physical ground connection, in order to eliminate the static between the film (5) and the adhesive tape (8).

25 In order to form the body of the toy, first it is necessary to form a tubular piece. To do so, a rectangular piece of a mylar or nylon or polyester or polypropylene film (5) is used or one of similar polymers or laminations of these, preferably metalized. The film (5) is centered over the flat part (1) of the fixture (device), which remains under the two sole plates (flats) (2) for fastening and tightening; the sole plates (flats) are placed at an appropriate distance, so that it is possible to make two folds on the sole plates (flats) (2) and so that the longitudinal

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ends of the same film (5) are overlapped by approximately 2 cm, as can be seen in Figures 4 and 5. A wide and transparent tape with a special adhesive(8) is applied on this overlap; which sticks the film to give structure and resistance to the tubular piece, which is formed and does not permit any leak of the fluid it is being filled with. It is important to rub with pressure on the adhesive tape (8) in order to become as airtight as possible. The tape must remain without any creases or grooves.

Subsequently, the tube, which was formed with the film (5) of the fixture (device), is taken off, by slightly opening and raising the sole plates (flats) (2) through their levers (3) applying simple leverage; the tubular piece is extracted through the opposite end (3A) of the levers (3).

The tubular piece is folded lengthways (Figure 6), and then folded lengthways for a second time as seen in Figure 7, and then heat-sealed (9) at one of the tubular ends in order to obtain the symmetrical tip (10) of the toy.

Subsequently, the toy is inflated by introducing fluid, preferably air, through the back hole (11), and later more adhesive tape (8) is placed on the sealing (9) of the toy's tip (10), in order to strengthen such sealing (9).

In order to be able to use this toy, it must be inflated, by blowing air from a distance of approximately 30 cm from the air inlet (11), stretching the balloon lengthwise it can be inflated with one blow (for a toy with a 1.60 m height and a 24 cm diameter). The balloon can also be filled with other fluids. The balloon is then taken by the end where it was inflated and placed on the palm of the hand and twisted until forming a tight cord (12, Figure 11), these turns create pressure on the toy, so that when the balloon turns by twisting its end (12), the length of same is reduced. This pressure on the body of the toy is indispensable, so that when a semicircle (13) is created at the base of the balloon, with the tight cord (12), and the rest of the tight cord is fitted concentrically under the semicircle (12) and does not move and remains trapped. This arrangement forms a compact mass (13), which is the

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base of the toy, and on which it can bounce consistently. Its aerodynamic shape facilitates flying and gliding. Furthermore, the toy is pressure-resistant up to a weight of approximately 35 kilograms and can be inflated and deflated several times.

- 5 This way, an inflatable toy is obtained with the appearance of a space rocket, characterized by a cylindrical body, which on one end has a tip (10) or variations, as can be observed in Figures 14, 15, 16, 17, 18 and 19. These variations of the tip (10) are accomplished through heat-sealing with predesigned molds; such tips (10) may or may not be strengthened with adhesive tape. Another modality of the toy is to make a knot (14) on the opposite end of the base (13) of the toy, with or without a rubber band, as can be observed in figure (14).

As being mentioned before, the toy of the present invention has a straight tubular body, however, this body can be changed into different shapes, such as corrugations, angular and/or helicoidal forms to accomplish a more attractive appearance, such as can be appreciated in Figures 20, 21, 22, 23 and 24. Furthermore, all possible combinations between the types of tubules and tips can be made, which are described in this invention; as well as all those variations of shapes that are not mentioned and that somehow are implied in this application.

- 20 The tip is preferably pointed towards the direction one wants the inflatable toy to follow. The balloon is held with the left hand in the middle and the right hand is used to hit it on the base (13) with the palm of the open hand, where it is wound (13), which is the way this toy is driven in order to fly, by opening the air with its aerodynamic tip, and since it is very light and elongated, it can glide (when it is filled with the gaseous fluid, which emanates from the mouth), if it is filled to 70% with helium gas, its gliding and displacement can be extended even more.

- 30 When the balloon is then bounced on the compact mass, which is its base (13), against a hard surface, when the base and the surface collide, a particular noise can be heard, which is the noise of two compact masses, except that the balloon itself is much lighter, and the

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reaction of the toy due to inertia is to move through the air, using its aerodynamic tip (10) to open the air. In this case the balloon will follow the direction to which it was slightly tilted.

5 If it is bounced in a vertical direction, the balloon bounces and follows an almost perfectly vertical trajectory. If on the other hand, if pressure is applied to the tip (10) against the ground and pushed downwards, upon being released, the balloon immediately reacts by flying off the ground.

10 When being used, the inflated toy is made up of a cylindrical body; an aerodynamic tip (10) on its top, and a compact base at the bottom (13). The cylindrical body and the tip (10) are one single section, just like the compact base (13), in other words, everything is one single piece.

15 This form is reproduced in multiple stages, preferably the cylindrical body is longer than the tip (10). The cylindrical body may also vary; with diameters from 6 or 7 cm until 1 meter or a little bit more, all are closed the same way at the base (13).

20 What is notable about these toys is that the cylindrical body is not sealed, as is the case with current inflatable toys. Which is the reason why toys of the present invention their cylindrical bodies only have adhesive tape, which makes its manufacturing simpler and cheaper, reducing costs and time in its manufacture. Besides, these toys have the same quality as the ones already known.

25 The invention can be exploited industrially as a fun toy because of all of its characteristics and the prints and drawings that can be placed on it result ornamental.

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